

I CHALLENGED MYSELF TO DRAW LIKE AN AI, WHAT DID I LEARN?

Quite a bit actually...

Intro

Hello, I am tekKUh, also known as TecMaster000 on Newgrounds, a 15 year old digital artist who likes to draw for fun, constantly fascinated by technology, especially of today.

I haven't been so fond of AI companies stealing artists data and calling it "Publicly Accessible Data", but nether-the-less, the actual way these Image Generating AIs work will never fail to amaze me.

I mainly challenged myself to do this because I knew there had to be some flaw, despite the absolute astonishing ways all of it happens, the AI itself doesn't have a voice, so I decided to be its voice.

So how does AI Image Generation even work?

(NOTE: This is just a super simple overview, you are literally one search away from diving into the rabbit hole of AI Image Generation).

If I was going to have any chance of drawing like the AI, I need to copy its method as best as I can.

I began just searching about how it works, clicking wherever felt like the right way to go, a very useful video I learnt from would be [Gonkee's How Stable Diffusion Works on Youtube](#).

But for those who just want it in short, here's what happens...

Step 1: Training

Its obvious to anyone that AI doesn't actually make anything unique, Its just trained on a TON of images, but not just images, the AI needs to know what each image means.

So in short, images get processed, with or without manual intervening, using clever tricks so it doesn't take years, attached to words and a ton of words that are similar or connected [this is why if you were to tell it to make a table, chances are It would also draw out a floor for the most part], essentially making a text to image Interpreter, like a translator almost!

After a while of training, we get given a cool model thats basically a game card, just of processed data, ready to generate "new" images.

But what does the AI actually do when it starts making an image now???

Step 2: Make noise

Yes, the AI's first step in making refined, pristine images is going full HowToBasic with the canvas, generating some amazing noise first to then denoise into a nice image

[because yes, thats also what it gets trained on, denoising garbage to THEN make the image, like polishing, thats essentially what It was trained to do in the end, It makes sense now!]

Step 3: Polish it

After it feels content with its mathmatically accurate noise, It starts to use its data to:

- Connect the dots
 - It has an entire word bank, so using your prompt it can then connect words up, filling in the gaps and highlighting apparently "important" factors, before the amount of fingers weren't considered, but now we have made text really well with AI Image Generation now!
- Polish your image slowly as many times as it has been told

This is the main part of the process, so lets explain this a bit further..

With the very cool noise, which is just colours splattered everywhere, every pixel being insanely different, It does an inference.

...and whats an inference?

Think of inference like a set of rough strokes, modifying the image so it is closer or following the prompt, It is still literally like shoe polishing.

[Again, VERY simplified, and you are one search away from finding answers that will possibly break your neurons]

So it just overlays it a bit with a thin layer of... pixels, from its trained data.

It then repeats this one step for how many Inferences it has been told to do, Its a computer after all, how would It decide that?

This is the part where I try simulate this technique

If I can even call it one...

Nether-the-less, I picked up my stylus, and went to copy this exact technique.. So HERE GOES!!!

Step 1: Training

I don't feel the urge to stare at word banks and over 100,000,000 images, that would just ruin my day, and fortunately, I already have some sort of experience as a human being who has learnt a language, and how to put them Into visual forms, just like the AI did.

I think I can safely pass this step...

Step 2: Make noise

This is possibly an original experience, but the first step of my artistic process was ✨ adding noise ✨.

I was able to do this quite easily via the noise effect.

[Me adding noise to a 148x148 canvas, I think it would've taken too long with a high pixel count canvas overall].



Step 3: Polish it

So we have met our most important process, how was I going to immitate this??

VERY luckily for me, I have seen Stable Diffusions Inpainting feature, It essentially lets you see the AI paint it out, and It does it from noise!

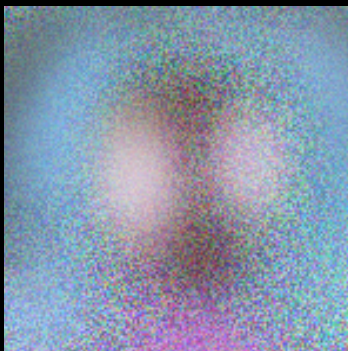
[You can see a quick demo of this feature here](#)

Pretty cool isn't it? Different models sometimes even have different ways of doing this somehow, which I can't explain. [without inpainting, but they can be figured out roughly by generating by a single inference, two inferences etc-, then putting the pieces together. Inpainting & straight up algorithmatically can produce different results and show different ways of doing things.]

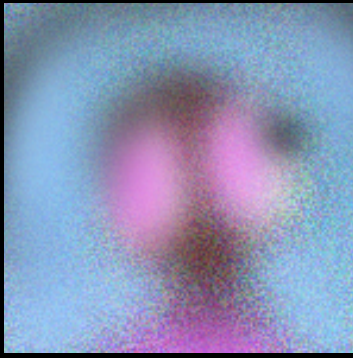
So to my previous views of seeing each inference generated onto of one another, I went with the approach of using an airbrush, setting it to a massive size, a low opacity, and just overlaying it, setting the brush slightly smaller with every layer of paint.

Now with this technique, I will be drawing a character portrait, Its just a character with a circular face, big eyes, and eyelashes, small nose, yada yada yada.

So after my 1st "Inference", I came out with this:



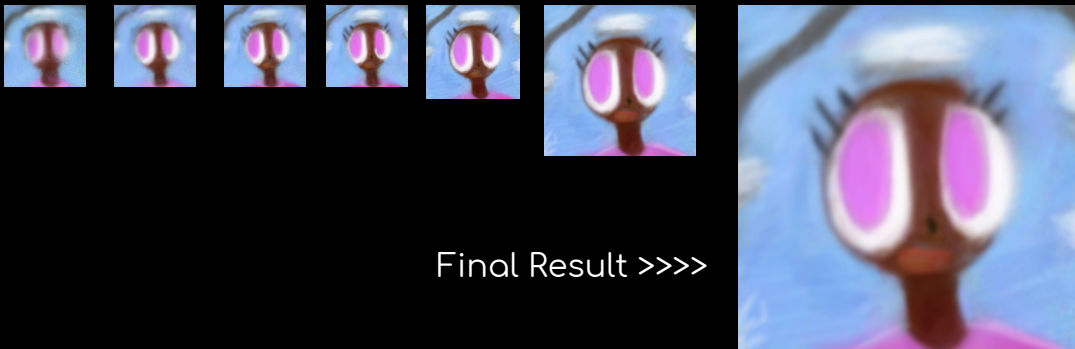
Using an airbrush, I just overlayed it, pretty rough, pretty okay so far, I am a human after all so I never faced the problem of accidentally making weird features, Im just goated with my model.



And I just continued



And continued....



Final Result >>>>

And decided it was fine to stop.

So that was a very interesting experience, I found out that I had many advantages over AI in which:

- I can stop random artefacts
- Im not in a dream [where things just mutate randomly]

There's this weird thing about AI Image Generation specifically where It doesn't keep context sometimes, unfortunately I didn't want to do that because I actually have a soul that doesn't want to ruin something like this, and I also had a lot of training to what IS and what ISN'T useful.

So what's my conclusion after all of this?

Before I make my conclusion for Improvements, I actually want to use this as an opportunity to make a few points about AI:

- AI Image Generation is a good tool.
 - Obviously AI Image Generation isn't perfect, will never be. It's a tool, think of my analogy of a "translator", that is essentially what it is, a text to image translator, trained to text and translations in image.

If you think about translation bots, have they replaced translators? No, they are simply a tool, AI Image Generation should never be a replacement unless its necessary and you don't have the skills to translate your words to another language, or art.
- Dont attack developers.
 - This should be obvious to anyone, but the developers working on this are amazing people, and for the most part, voluntary, they are only doing this to bring a neat tool to us, using images non-commercially for research the only people you should blame for the theft is the big co-orporations accessing "Publically avaiiable information" [Ako. Stolen work] and feeding them into these AI algorithms for commercial purposes, which can be stated to be Illegal in most if not all cases.

With that rant out of the way, lets actually conclude this:

- AI doesn't know yet when to stop, neither does it ask during its process.
 - This would be a very tedious and power hungry task, but AI can be made more intelligent, by reviewing itself after each inference.

Or actually better yet, to ask the user, could you imagine if after x amount of inferences, you were asked what to tweak? and it could add it to the prompt and continue? This could in my opinion, reduce power intensivity as AI becomes more optimised and as it reduces the amount of times people generate images, heavily saving power and even helping world in doing so as the amount of times AI starts generating new images are reduced! Giving quality over quantity

- AI model developers should work with Artists to make AI Optimised inputs for training
 - Even if scraped data is used [which is fine for non-commercial, not commercial uses], some amount of good art that doesn't include weird artefacts given as contributions from Artists can heavily improve the AI, and define for the AI what is actually good, and what is actually bad, would help the AI and in return help the artists using them as a tool, giving them a clearer image to take reference from.

There are other minor things like imperfections and obviously just that It can't do some things, but I believe they are already being worked on, or have been made as a patch for Stable Diffusion.

AI Image Generation is an amazing tool, and amazing as a little help for artists for brainstorming ideas, but the biggest problem is its marketing that its going to replace artists, and be an artist itself, when it actually shouldn't, just like how translators haven't been hugely affected by machine translation, which is a lot more simple and better than ever today.



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Credits:

tekKUh - Writer and responsible for the project

Honourable Mentions:

DoAvyGirl – A cool supportive person

Ibis Inc. – Their amazing art app “Ibis Paint X” was what I used to make my drawing!

You – For reading this till the end and potentially showing your support for me and OPWriters Garage!!!

